

REMARKS

I. Introduction

At the time of the Office Action of December 29, 2006, claims 34-69 were pending in this application. In this Amendment, claims 39 and 66 have been amended, and claims 38, 49-65, and 67 have been canceled, and new claims 70 and 71 have been added. Care has been exercised to avoid the introduction of new matter. Support for the amendment of claims 39 and 66 can be found in, for example, page 12, lines 8-17 of the specification and Fig. 1. Support for the new claims can be found in, for example, page 12, lines 8-12; and page 13, lines 8-11 of the specification, and Fig. 1.

Claims 34-37, 39-48, 66, and 68-71 are now active in this application, of which claims 39 and 66 are independent.

II. The Rejection of Claims 34-47, 49-63, 65, and 68

Claims 34-47, 49-63, 65, and 68 have been rejected under 35 U.S.C. §102(b) as being anticipated by Guidash. It is noted that the rejection of claims 38 and 49-63 has been rendered moot by cancellation of those claims.

Applicants submit that Guidash does not disclose a solid state imaging apparatus including all the limitations recited in independent claim 39. Specifically, Guidash does not disclose, at a minimum, “each first floating diffusion section is shared by the photoelectric conversion cells adjacent to each other, and each second floating diffusion section is shared by the photoelectric conversion cells adjacent to each other, and substantially one floating diffusion section is included in the adjacent photoelectric conversion cells,” recited in claim 39.

In the present invention, a floating diffusion section can be shared by photoelectric conversion cells each including a plurality of photodiode sections. For example, in Fig. 1 of the present application, four photodiode sections (two photodiode sections are in one photoelectric conversion cell, while the other two photodiode sections are in another photoelectric conversion cell) share one floating diffusion section. It may be said that there is a 0.25 floating diffusion section per photodiode section. Accordingly, the present invention can reduce the number of floating diffusion sections per photodiode section. As a result, it is possible to increase an aperture ratio, i.e., an opening area of the photodiode section (photoelectric element) to the photoelectric conversion cell and downsize plane dimensions of the photoelectric conversion cell itself.

Guidash in Figs. 2A and 2B discloses a solid state imaging apparatus comprising: picture architecture 20 (picture cell) including two photodetectors 24 arranged in two rows and one column; transfer gates TG1 and TG2 for transferring charges from the photodetectors 24; floating diffusion section 26 connected to photodetectors 24 through transfer gates TG1 and G2; and amplifier 27 connected to floating diffusion section 26.

As shown in Figs. 2A and 2B of Guidash, floating diffusion section 26 is owned exclusively by one picture cell (picture cell 20), i.e., two photodiode sections in one picture cell share one floating diffusion section, but the floating diffusion section is not shared by picture cells adjacent to each other. This means that there is a 0.5 floating diffusion section per photodiode section in Guidash.

In contrast, the claimed floating diffusion section is shared by photoelectric conversion cells adjacent to each other. Since each photoelectric conversion cell includes a plurality of photoelectric sections, as claimed, the floating diffusion section is further shared by the plurality

of photoelectric sections in one photoelectric conversion cell. For example, in the case of Fig. 1, it can be said that there is a 0.25 floating diffusion section per photodiode section in the present invention. Accordingly, Guidash does not disclose, at a minimum, the claimed floating diffusion section.

According to one aspect of the present invention, since the number of floating diffusion sections can be reduced, it is possible to increase the aperture ratio of the photodiode section to the photoelectric conversion cell and downsize the plane dimensions of the photoelectric conversion cell. As a result, sensitivity of the solid state imaging apparatus can be improved. Guidash cannot provide the same benefit.

Based on the foregoing, Applicants submit that Guidash does not identically disclose a solid state imaging apparatus including all the limitations recited in independent claim 39, within the meaning of 35 U.S.C. §102. Dependent claims 34-37, 40-47, and 68 are also patentably distinguishable over Guidash at least because these claims respectively include all the limitations recited in independent claim 39. Applicants, therefore, respectfully solicit withdrawal of the rejection of the claims and favorable consideration thereof.

III. The Rejection of Claims 66, 67, and 69

Claims 66, 67, and 69 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Guidash and Patterson. The rejection of claim 67 has been rendered moot by cancellation of the claim.

The Examiner admitted that Guidash does not disclose that the solid state imaging apparatus is part of a camera. However, the Examiner asserted that Patterson et al. teaches the

missing feature of Guidash, and concluded that it would have been obvious to modify Guidash's device based on the teachings of Patterson et al. to arrive at the claimed invention.

Applicants submit that Guidash does not disclose a camera including all the limitations recited in independent claim 66. Specifically, Guidash does not teach, at a minimum, "each first floating diffusion section is shared by the photoelectric conversion cells adjacent to each other, and each second floating diffusion section is shared by the photoelectric conversion cells adjacent to each other, and substantially one floating diffusion section is included in the adjacent photoelectric conversion cells," recited in independent claim 66. Applicants incorporate herein the arguments previously advanced in responding to the rejection of claim 39 under 35 U.S.C. §102 for anticipation evidenced by Guidash. The Examiner's additional comments and secondary reference to Patterson et al. do not cure the previously argued deficiencies in Guidash.

Accordingly, Guidash and Patterson et al., either individually or in combination, do not teach a camera including all the limitations recited in independent claim 66, within the meaning of 35 U.S.C. §103. Dependent claim 69 is also patentably distinguishable over Guidash and Patterson et al. at least because the claim includes all the limitations recited in independent claim 66. Applicants, therefore, respectfully solicit withdrawal of the rejection of the claims and favorable consideration thereof.

IV. The Rejection of Claims 48 and 64

Claims 48 and 64 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Guidash in view of Yamazaki et al. It is noted that the rejection of claim 64 has been rendered moot by cancellation of the claim.

Since claim 48 depends from independent claim 39, Applicants incorporate herein the arguments previously advanced in responding to the rejection of claim 39 under 35 U.S.C. §102(b) for anticipation evidence by Guidash. The Examiner's additional comments and secondary reference to Yamazaki et al. do not cure the previously argued deficiencies in Guidash. Applicants, therefore, respectfully solicit withdrawal of the rejection of the claim and favorable consideration thereof.

V. New Claims 70 and 71

Applicants believe that new claims 70 and 71 are patentably distinguishable over Guidash, Patterson et al., and Yamazaki et al. Favorable consideration is, therefore, respectfully solicited.

VI. Conclusion

It should, therefore, be apparent that the imposed rejections have been overcome and that all pending claims are in condition for immediate allowance. Favorable consideration is, therefore, respectfully solicited.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper,

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including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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